Neighborhood Traffic Management Program

TRAFFIC CALMING MEASURES

1. Speed Limit Signs

Speed limit signs are traffic control devices used to communicate the safe and reasonable operating speed on a particular roadway. Under Texas state law, all residential streets are 30 mph unless posted other than 30 mph.

Advantages

- Inexpensive
- Informs the driver of the regulatory speed limit

Disadvantages

- May not affect familiar motorists behavior
- Effectiveness decreases on straight and wide streets
- Signs are unattractive and can cause visual clutter

Approximate Cost

- $150 per sign installation

Eligibility Considerations

- Streets that have a documented speeding problem
- Streets that appear to motorists to have a faster speed limit, i.e., very wide streets
- Primary entrance into a residential subdivision where the interior streets are all 30 mph zones
- Streets that have a speed limit that differ from 30 mph

2. Stop Lines (Stop Bars)

Stop lines (stop bars) are 24 inches wide, solid white lines extending across approach lanes to indicate the point at which to stop. Not required at intersections with stop signs.

Advantages

- Directs motorists of the preferred location to stop their vehicle when sight distance is limited or when accident history indicates that motorists are running the stop sign

Disadvantages

- As with all pavement markings, they require perpetual maintenance
- Effectiveness is diminished when markings are faded

Approximate Cost

- $300 - $800 per intersection

Eligibility Considerations

- Poor sight distance from a stop or yield-controlled approach to an intersection
- Accident trend that may be correctable by marking stop lines

3. One-Way Streets and Partial or Half Closure

Converting two-way streets to one-way streets can help reduce cut-through traffic when there is a dominant direction in traffic flow. Similarly, partial or half closures which are barriers that block travel in one direction for a short distance on otherwise two-way streets; can help cut-through traffic.

Advantages

- May be useful when a high volume of non-local traffic uses a neighborhood street as a shortcut between arterial roadways. In this case, the one-way flow is oriented in the opposite direction of the cut-through traffic. For partial or half closures the one direction restriction for a short distance is oriented in the opposite direction of the cut-through traffic.

Disadvantages

- Residents may be inconvenienced by the one-way and half or partial closure flow
- The problem may be diverted to parallel routes if they exist
- Pedestrians are less inclined to check the street for vehicles approaching from the wrong direction

Approximate Cost

- $2,500 - $3,500 per block (one-way street conversion)
- $5,000 to $20,000 per block (partial or half closure)

Eligibility Considerations

- 90% of abutting property owners must agree.
- Review and approval by the emergency response departments is necessary
- Acknowledgement that one-way designation would be permanent (i.e., 24-hours a day, 7 days a week)

4. Improved Shoulders / Parking Lanes

Improved shoulders/parking lanes are areas along the edge of the roadway created by marking a four-inch wide, white stripe approximately six to eight feet from the curb or edge of pavement. The width is sufficient to allow vehicles to park without being too wide to be confused by motorist as a travel lane.

Advantages

- May give the psychological effect of reducing pavement width and may reduce operating speeds.
- 7 to 8 foot improved shoulders may serve as a parking lane

Disadvantages

- Markings require perpetual maintenance

Approximate Cost

- $250 - $300 per 100 linear feet per direction

Eligibility Considerations

- Street pavement width must exceed 36 feet
- Street must be classified as a residential or collector street

5. Modified Striping

Modified striping is placed along the edge of the roadway by marking a four-inch wide stripe from the curb or edge of the pavement. Hatch stripes also help provide a buffer from bicyclist and pedestrians.

Advantages

- May give the psychological effect of reducing pavement width and may reduce operating speeds

Disadvantages

- Markings require perpetual maintenance

Approximate Cost

- $250 - $300 per 100 linear feet per direction

Eligibility Considerations

- Street pavement width must exceed 36 feet
- Street must be classified as a residential or collector street

6. Bicycle Lanes

Bicycle lanes are areas along the edge of the roadway created by marking an 8-inch wide, white stripe approximately five to six feet from the curb or edge of the pavement. In addition to the white stripe on the road, bicycle symbols and arrows are placed on the pavement within the bike lane and appropriate signage is placed adjacent to the roadway.

Advantages

- Provides a safe place for bicyclists to ride and not interfere with roadway traffic
- May give the psychological effect of reducing the pavement width and may reduce operating speeds
- Provides a location where pedestrians can walk along the roadway when sidewalks might be obstructed or are non-existent

Disadvantages

- High level of maintenance to maintain striping on roadway
- Signs are a requirement and can be unsightly in residential areas
- There is not a law preventing motorists from parking in a bike lane unless designated as no-parking along the entire segment
- Level of speed reduction is usually minimal

Approximate Cost

- $6,000 per mile

Eligibility Considerations

- Street pavement width must exceed 32 feet
- Connectivity to local venues or other bike lanes should be present

7. Turn Restrictions

Turn restrictions may be used on local street connections to main streets where through traffic volume along the continuing local street is a problem.

Advantages

- Dissuade cut-through traffic through residential streets
- May address certain types of accident problems i.e., rear-end or right angle accidents

Disadvantages

- Turn restrictions, like all restrictive regulations, require regular enforcement to achieve effectiveness
- Turn restrictions may inconvenience residents because they are also prohibited from turning

Approximate Cost

- $200-500 per location

Eligibility Considerations

- Cut-through traffic must be quantified within the affected area
- License plate surveys may be conducted to accurately determine the amount and nature of vehicles cutting through from outside the neighborhood or street
- The estimated percentage of cut-through traffic on a street is equal to or greater than 20% of the observed daily traffic volume, and the observed daily volume is equal to or greater than 720 vehicles per day
- Should have 5 or more crashes in one-year that are correctable by restricting certain movements

8. Rumble Strips

Rumble strips are patterned sections of rough pavement or may be topical applications of raised material, which directs the attention of the motorists back to the roadway.

Advantages

- Rumble strips may be used to heighten motorists' awareness of certain conditions, i.e., approaching a stop sign, curve, etc.

Disadvantages

- Rumble strips are noisy and may be inappropriate near residences
- Does not affect operating speeds of vehicles
- Effectiveness of the rumble strips has not been determined

Approximate Cost

- $1,000 per lane per direction

Eligibility Considerations

- Unusual or unexpected condition that requires particular attention by the motorist
- Accident history that would support the installation of rumble strips
- Nearby residents must acknowledge that rumble strips are noisy and a written request must be submitted to the City, in the form of a petition, before installation

9. Textured Pavement

Textured and colored pavement includes the use of stamped pavement or alternate paving materials to create an uneven surface for vehicles to traverse. They may be used to emphasize either an entire intersection or a pedestrian crossing, and are sometimes used along entire street blocks. Texture pavement is most appropriate for “Main Street” areas where there is substantial pedestrian activity and noise is not a major concern.

Advantages

- Reduces vehicle speeds over an extended length
- Creates a positive aesthetic value
- When placed at an intersection, it may calm two streets at once

Disadvantages

- Generally expensive, depending on materials used
- If used on a crosswalk, they can make crossings more difficult for wheelchair users and the visually impaired
- Street repair work will be more costly
- Pavement markings are difficult to maintain

Approximate Cost

- Varies by material and area to be covered

Eligibility Considerations

- This treatment should be reserved for areas like the downtown area, historic neighborhood areas, or as a signifier that fits into a specific development

10. Flashing Beacons

A flashing beacon is a traffic signal with one or more signal sections that operates in a flashing mode. Flashing beacons are used to supplement regulatory or warning signs by drawing the motorist's attention to the sign.

Advantages

- Draws attention to regulatory or warning sign
- For school zones, it helps to remind motorists when the reduced speed zone is in effect

Disadvantages

- Cannot be placed close to trees due to the solar panels that power the device
- Limited street right-of-way can restrict effective placement of the device
- Overhead flashing beacons should not compete with a traffic signal or within the line of sight of the traffic signal

Approximate Cost

- $14,000 per pair (side mounted) and $25,000 per pair (overhead)

Eligibility Considerations

- Existing school zone locations
- Established pedestrian crossing locations
- Overhead flashing beacons required for multi-lane road with two (2) or more lanes of traffic in one direction
- Locations where verified crashes due to disregard to regulatory or warning signs thus requiring heightened awareness of signs

11. Speed Limit Radar Unit Signs

Speed limit radar unit signs are supplemental traffic control devices used to inform motorists of their operating speed. Radar speed signs display actual vehicle speeds.

Advantages

- Reduces operating speeds to legal speed limit

Disadvantages

- Radar units are not appropriate on all roads
- Effectiveness may diminish over time if enforcement is not present
- City of Houston does not fund or maintain radar feed back signs, which means the neighborhood has to cover installation, maintenance, and insurance cost of the sign

Approximate Cost

- $9,000 per installation

Eligibility Considerations

- May be used for school zones
- Must have sufficient street right-of-way for placement of the unit

12. Subdivision Monument Signs

Subdivision monuments, or gateway treatments, help define the neighborhood area. Monuments are typically placed on the side of the road or within a median island at the main entrance points to a neighborhood.

Advantages

- Inform the motorists that they are entering a residential area
- Monument signs are useful to guide motorists to their destination

Disadvantages

- Monument signs are expensive to install and maintain
- Many residential areas do not have mandatory neighborhood or homeowner associations
- Voluntary associations typically lack the resources to erect and maintain such structures
- May have a negative impact on local street drainage or sight distance due to structure or landscape placed within area of monument

Eligibility Considerations

- Varies with the size of monument and construction materials used Eligibility Considerations
- Must have sufficient street right-of-way to place monument
- Must be a registered neighborhood/homeowner association
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

13. Speed Humps

Pre-formed rubber speed cushions are raised, physical features that are uncomfortable to negotiate at high operating speeds. Rubber speed cushions are sets of panels that are applied to the road surface using bolts. Rubber speed cushions do not impede emergency vehicles.

Advantages

- Effective in reducing operating speeds
- Wider emergency vehicles can straddle the cushions with minimal impact to speed
- Relatively easy for bicycles to cross

Disadvantages

- Creates a “rough ride” for all drivers
- May force large vehicles with rigid suspensions to travel at slower speeds
- May increase noise and air pollution
- May not be aesthetically pleasing
- Increases emergency vehicle response time by 8-10 seconds when installed in pairs, (i.e., at each end of a street)
- May have a negative impact on local street drainage
- Requires perpetual maintenance

Neighborhood Traffic Management Program

Approximate Cost

- $12,000 - $15,000 per set depending on street width/condition

Eligibility Considerations

- The street must provide access to abutting residential properties and/or to an institution
- The street may not be a Major Thoroughfare or a Major Collector as defined by the Department of Planning and Development
- The street may not be a designated Primary Emergency Service Travel Route as defined by the Houston Fire and Police Departments
- The street may not be designated as a METRO bus route
- There must be no more than one moving lane of traffic in each direction
- The street must have a posted or prima facie speed limit of 40 mph or less
- The street must be paved prior to construction of the speed humps
- Traffic volumes must be less than 5,000 vehicles per day
- 15% of the observed vehicular speeds must exceed the posted or prima facie speed limit by 3 miles per hour or more in a 24-hour period; or there must be five or more reported speed related accidents within a segment during the last twelve months of recorded data
- Evidence of neighborhood support (2/3 of the residents property abutting the street segment in question must support installation of speed humps)

14. Speed Tables

Speed tables are flat-topped speed humps often constructed with brick or other textured materials on the flat section. Speed tables are typically long enough for the entire wheelbase of a passenger car to rest on the flat section. Their long flat fields give speed tables higher design speeds than speed humps. The brick or other textured materials improve the appearance of speed tables, draw attention to them, and may enhance safety and speed-reduction.

Advantages

- For locations where low speeds are desired but a somewhat smooth ride is needed for larger vehicles
- Effective in reducing operating speeds, though not to the extent of speed humps
- Wider emergency vehicles can straddle the cushions with minimal impact to speed
- Relatively easy for bicycles to cross

Disadvantages

- Creates a “rough ride” for all drivers, though not to the extent of speed humps
- May increase noise and air pollution
- May not be aesthetically pleasing
- Increases emergency vehicle response time by 8-10 seconds when installed in pairs, (i.e., at each end of a street)
- May have a negative impact on local street drainage
- Requires perpetual maintenance

Neighborhood Traffic Management Program

Approximate Cost

- $20,000 - $35,000 per set depending on street width/condition

Eligibility Considerations

- The street must provide access to abutting residential properties and/or to an institution
- The street may not be a Major Thoroughfare or a Major Collector as defined by the Department of Planning and Development
- The street may not be a designated Primary Emergency Service Travel Route as defined by the Houston Fire and Police Departments
- The street may not be designated as a METRO bus route
- There must be no more than one moving lane of traffic in each direction
- The street must have a posted or prima facie speed limit of 40 mph or less
- The street must be paved prior to construction of the speed tables
- Traffic volumes must be less than 10,000 vehicles per day
- 15% of the observed vehicular speeds must exceed the posted or prima facie speed limit by 3 miles per hour or more in a 24-hour period; or there must be five or more reported speed related accidents within a segment during the last twelve months of recorded data
- Evidence of neighborhood support (2/3 of the residents property abutting the street segment in question must support installation of speed humps)

15. Intersection Curb Extensions

Curb extensions are employed to facilitate pedestrian crossings by narrowing the width of the street. Curb extensions reduce the roadway width from curb to curb. They shorten the crossing distances for pedestrians and draw motorist's attention to pedestrians via raised curb extensions.

Advantages

- Improves pedestrian circulation and space
- Through and left-turn movements are easily negotiable by large vehicles
- Creates protected on-street parking bays
- Reduces speeds, especially for right-turning vehicles
- Tightens the curb radii at the corners, thereby reducing the speeds of turning vehicles

Disadvantages

- May slow right-turning emergency vehicles
- May require the elimination of some on-street parking near the intersection
- May require bicyclists to briefly merge with vehicular traffic
- May have a negative impact on local street drainage

- May impact METRO bus stops

Approximate Cost

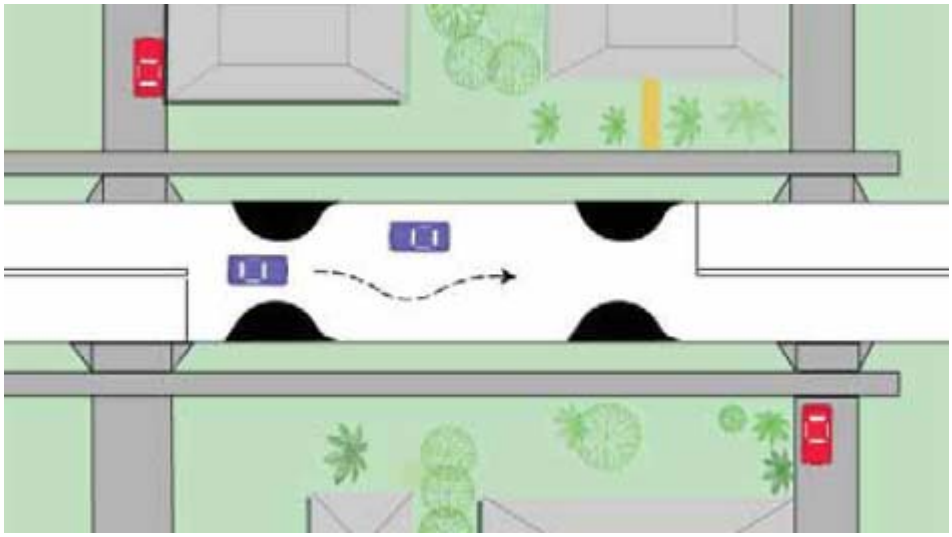
- $5,000 - $15,000

Eligibility Considerations

- Wide streets where significant pedestrian crossings occur
- Must be a local or collector street providing access to low density, single-family residential properties
- No more than one travel lane in each direction
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

16. Chokers

Chokers are mid-block curb extensions that reduce the roadway width from curb to curb. They shorten the crossing distances for pedestrians and draw motorist's attention to pedestrians via raised curb extensions.



Advantages

- Easily negotiable by large vehicles (such as fire trucks) except under heavy traffic conditions
- Has a positive aesthetic value
- Reduces speeds
- Provides parking refuge out of the traffic flow
- Reduces impervious cover and has a positive environmental impact

Disadvantages

- Curb realignment and landscaping can be costly if there are drainage issues
- May require the elimination of some on-street parking
- May be unfriendly to cyclists, unless specifically designed to accommodate them
- May have a negative impact on local street drainage

Neighborhood Traffic Management Program

Approximate Cost

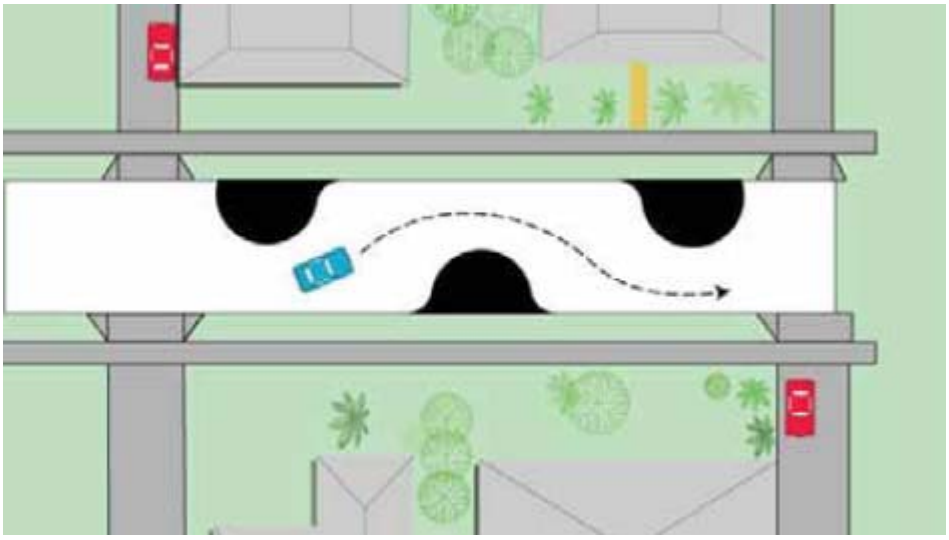
- $10,000 - $25,000

Eligibility Considerations

- 15% of the measured vehicular speeds must exceed the posted or prima facie speed limit by 6 miles per hour or more in a 24-hour study
- Minimum traffic volume of 500 vehicles per day
- Must be a local, or collector street providing access to low-density, single-family residential properties
- No more than one travel lane in each direction
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

17. Chicanes

Chicanes are mid-block curb extensions that alternate from one side of the street to the other, forming S-shaped curves. Typically, chicanes should only be used on low-volume (less than 500 vehicles per day) residential streets.



Advantages

- Easily negotiable by large vehicles (such as fire trucks) except under heavy traffic conditions
- Has a positive aesthetic value
- Reduces both speeds and volumes
- Reduces impervious cover and has a positive environmental impact

Disadvantages

- Curb realignment and landscaping can be costly, especially if there are drainage issues
- May require bicyclists to briefly merge with vehicular traffic
- May require the elimination of some on-street parking
- May have a negative impact on local street drainage

Neighborhood Traffic Management Program

Approximate Cost

- $10,000 - $25,000

Eligibility Considerations

- Daily traffic volume must range between 720 and 2,000 vehicles per day
- 15% of the observed vehicular speeds must exceed the posted or prima facie speed limit by 6 miles per hour or more in a 24-hour study
- Must be a local or collector street providing access to low density, single-family residential properties
- No more than one travel lane in each direction
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

18. Forced Turn Islands

Forced turn islands are raised islands that block certain movements on approaches to an intersection. These islands can be used for local street connections to main streets where through traffic volume along the continuing local street is a problem, or on a main street where left turns or through movements out of the side street are unsafe.

Advantages

- Improves safety by prohibiting dangerous turning movements
- Reduces traffic volumes on a cut-through route that crosses a major street

Disadvantages

- May simply divert a traffic problem to a different street
- May have a negative impact on local street drainage

Approximate Cost

- $5,000 - $15,000

Eligibility Considerations

- Cut-through traffic must be quantified by estimating neighborhood base traffic volume
- License plate surveys may be conducted
- The estimated percentage of cut-through traffic on a street is equal to or greater than 20% of the observed daily traffic volume, and the observed daily volume is equal to or greater than 720 vehicles per day
- Must show a history of accidents that are correctable by the installation of a forced turn island
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

19. Raised Pedestrian Refuge Island

Raised pedestrian refuge islands are typically located along the centerline of a street. These raised median islands aid pedestrians in crossing a street by allowing the crossing maneuver to be completed in two stages.

Advantages

- Reduces pedestrians crossing distance
- Allows crossing maneuver to be completed in two stages
- May reduce vehicle operating speeds

Disadvantages

- Requires sufficient street width on the major street
- May reduce sight distance if heavily landscaped
- Increased maintenance
- May impair access and encourage traffic driving on the wrong side of the street
- May have a negative impact on local street drainage

Approximate Cost

- $15,000 - $40,000

Eligibility Considerations

- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

20. Traffic Circle Islands

Traffic circle islands are raised landscaped areas located along the centerline of a roadway within non-intersection, mid-block locations. The islands narrow the travel lanes and channelize traffic and separate opposing flows. Traffic must slow down to maneuver around a median.

Advantages

- Increases pedestrian safety
- Can have positive aesthetic value
- Reduces operating speeds

Disadvantages

- May require elimination of some on-street parking
- May require right-of-way acquisition
- May have a negative impact on local street drainage

Approximate Cost

- $10,000 - $40,000

Eligibility Considerations

- Must be a local or collector street providing access to low-density, single-family residential properties
- No more than one travel lane in each direction
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

21. Median Barriers

Median barriers are islands located along the centerline of a street and continuing through an intersection so as to block through and left-turn movements at a cross street.

Advantages

- Improve safety at an intersection of a local street and a major street by prohibiting dangerous turning movements
- Reduces traffic volumes on a cut-through route that crosses a major street

Disadvantages

- Requires sufficient street width on the major street
- Limits turns to and from the side street for local residents and emergency services
- May require the removal of on-street parking on narrower streets
- May have a negative impact on local street drainage

Neighborhood Traffic Management Program

Approximate Cost

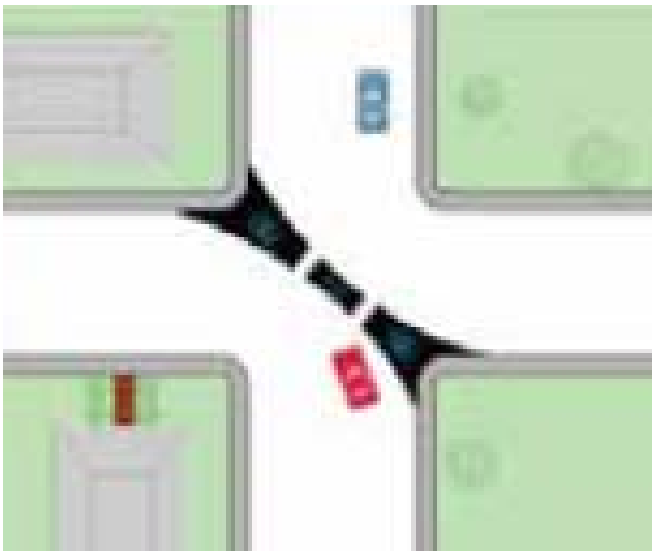
- $10,000 - $40,000

Eligibility Considerations

- Street must have a minimum 32 feet wide pavement section (36 feet recommended)
- License plate surveys may be conducted
- The estimated percentage of cut-through traffic on a street is equal to or greater than 20% of the observed daily traffic volume, and the observed daily volume is equal to or greater than 720 vehicles per day
- Should have a history of accidents that are correctable by the installation of a median barrier
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

22. Diagonal Diverters

Diagonal diverters are barriers placed diagonally across an intersection, blocking through movement; they are sometimes called full diverters or diagonal road closures. These types of street closures are most appropriate for neighborhood areas with grid network streets where cut-through traffic is a significant problem.



Advantages

- Maintains full pedestrian and bicycle access
- Reduces traffic volumes

Disadvantages

- Limits access for local residents and emergency services
- May require reconstruction of corner curbs
- May inconvenience neighborhood residents
- May have a negative impact on local street drainage
- Requires approval of the entire platted subdivision

Neighborhood Traffic Management Program

Approximate Cost

- $10,000 - $30,000

Eligibility Considerations

- Cut-through traffic must be quantified by estimating neighborhood base traffic volume
- License plate survey may be conducted
- The estimated percentage of cut-through traffic on a street is equal to or greater than 20% of the observed daily traffic volume, and the observed daily volume is equal to or greater than 720 vehicles per day
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

23. Roundabouts

Roundabouts are raised, circular islands that are used at un-signalized intersections in an effort to reduce vehicular operating speeds and improve safety.

Advantages

- Effective in moderating speeds and improving safety at intersections
- Can have positive aesthetic value
- Calms two streets with one feature

Disadvantages

- Large vehicles may have difficulty negotiating the center island
- May require the elimination of some on-street parking
- Landscaping must be maintained by the residents
- Effective designs may impede emergency vehicle response time along the street unless the approach is stop-controlled
- May have a negative impact on local street drainage

Approximate Cost

- $15,000 - $30,000 per intersection

Eligibility Considerations

- Must be a local or collector street providing access to low-density, single-family residential properties
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

24. Realigned Intersection

Realigned intersections are changes in alignment that convert T-intersections with straight approaches into curving streets that meet at right angles. A former “straight-through” movement along the top of the T becomes a turning movement. While not commonly used, they are one of the few traffic calming measures for T-intersections, because the straight top of the T makes deflection difficult to achieve, as needed for traffic circles. Realignment may be appropriate for intersections with only three approaches and at skewed intersections.

Advantages

- Reduce speeds and improve safety at a T-intersection

Disadvantages

- Costly
- May require some additional right-of-way to cut the corner
- May have a negative impact on local street drainage

Approximate Cost

- $15,000 - $50,000

Eligibility Considerations

- Must be a local or collector street providing access to low-density, single-family residential properties
- No more than one travel lane in each direction
- Signs and vegetation must not impact existing sight distance of side streets
- Neighborhood association landscape maintenance agreement may be required (if necessary)

25. Police Enforcement

Police enforcement can reduce vehicle travel speeds and crashes. However, sufficient resources to mount and sustain effective speed enforcement programs are limited.

Advantages

- Inexpensive
- Reduced speeds
- Volume reduction

Disadvantage

- Compliance is temporary
- Time consuming, other priorities may limit resources for traffic enforcement

Approximate Cost

- No Charge

Eligibility Considerations

- Need to coordinate with Houston Police Department

26. Radar Speed Trailer

Temporary radar speed trailers are mobile and easy to setup. They are used to make drivers aware of their speed by providing an instant displayed message. Houston Police Department oversees the use of this equipment.

Advantages

- Inexpensive
- Mobile
- Reduced speeds

Disadvantages

- Not self-enforcing
- Compliance is temporary
- Availability of trailer is limited

Approximate Cost

- No Charge

Eligibility Considerations

- Need to coordinate with Houston Police Department